

**Single Family Design Guidelines Update
Neighborhood Preservation Ordinance Update**

ISSUE PAPER C

Calculation Methods:

Square Footage, Grading Calculations, Slope & Building Height

The purpose of this issue paper is to:

- Clarify calculation methods Community Development Department Staff use to determine and verify development application calculations.
- Clarify issues with existing calculation practices.
- Reference how other jurisdictions calculate items.
- Provide options and recommendations for ordinance language changes, calculation methods and data collection improvements for discussion
- Highlight upcoming Hillside related issues discussion related to height calculations

SQUARE FOOTAGE

Background

Development size is important as several Municipal Code Ordinance criteria are based on proposed development size. It is important to have a consistent manner by which this square footage information is calculated. Currently, staff calculate square footage by various methods, depending on review function. For example:

- **Exterior.** Building and Safety staff use exterior square footage to determine permit fees. Building and Safety also less frequently calculates “habitable” space to ensure minimum housing standards in the Uniform Building Code are met.
- **Interior.** The municipal code calls for measurements inside of exterior walls when evaluating commercial applications under Measure E, parking code triggers, and Neighborhood Preservation Ordinance (NPO) design review triggers.
- **Floor to Area Ratios.** Design Review staff sometimes utilizes general floor to area ratio data as a general tool to help determine neighborhood compatibility. The aim of floor to area ratio use is to establish a measurement of the relative appearance of a structure’s bulk. Floor to area ratios generally are calculated with exterior square footage divided by lot size.

“Floor Area” vs. “Square Footage” To prepare this issue paper, plan checkers and Building and Safety staff were interviewed. Through these interviews, a potential root source of confusion on this topic was discovered. The Uniform Building Code definition of “floor area” specifies the area as within the surrounding exterior walls. The Municipal Code has repeated this definition in the section regarding Measure E implementation and in the Parking Regulations section. Whenever Building and Safety staff refer to an exterior area measurement without exterior walls, they use the term “square footage” or useable area. The term “floor area” inherently cannot be an exterior (including walls) area measurement in Building and Safety current terminology. On the other hand, planners throughout the country use the term “Floor to Area Ratio” to describe a gross square footage to lot size calculation. This is confusing, because the words “floor area” can be derived from the term Floor to Area Ratio, but a gross square footage interpretation is inconsistent with Building and Safety terminology. Santa Barbara Development Review, Design Review and Zoning staff use the terms “square footage” and “floor area” interchangeably while Building and Safety staff do not.

Issues

Since the adoption of the NPO, confusion existed among staff regarding when to use net or gross floor area calculation methods for the purposes of NPO triggers. In 2001, a memorandum, attached, was issued to clarify that an interior floor area calculation method is generally standard for plan review and NPO triggers. However, even with the current standard application of interior net floor area calculation method being widely understood, architects and applicants continued to submit various square footage statistics on plans without any indication if net or gross was being used. The square footage information and figures accepted by different Zoning Counter, Design Review and Development Review staff are not

being confirmed and some confusion remains. The specific issues centered around square footage terms, use and calculation methods are as follows:

- **Lack of residential floor area definitions.** Floor area definitions are lacking in the general Definitions Section of the Municipal Zoning Code. Definitions for floor area are only listed in the commercial Measure E and Parking sections of the Municipal Zoning Code.
- **Gross, or exterior square footage definitions** are lacking in the Municipal Zoning Code.
- **A floor to area ratio (FAR) definition** in the Municipal Zoning Code is needed to meet Design Review staff needs for a gross square footage to lot size calculation.
- **Clarity lacking for floor to area ratio calculation on submittals.** No information is provided to applicants or to the public to explain how to calculate floor to area ratios. No information is given to specify when this measurement is required on an application.
- **Neighborhood Preservation Ordinance triggers** should be based on gross square footage rather than interior square footage to best address size and bulk appearance issues.
- **Net floor area calculation methodology is unclear.** The Development Project Statistics Form does not clearly explain how to calculate interior square footage for a project. A sample diagram and calculation would be helpful to increase clarity.
- **Gross exterior square foot data collection.** The Development Project Statistics Form does not collect both gross and net square footage information, which is necessary for effective design review and floor to area ratio calculations.
- **Staff does not have time to verify square footage calculation methods.** Should staff always accept the calculations from applicants as accurate. When should staff request additional calculation methods to indicate how totals were arrived at.
- **Building permit project descriptions** and applications should clarify what square footage methodology is being utilized for Building and Safety fee calculation purposes.

Recommendations

In order to eliminate current confusion, some changes are necessary. For an easier application submittal and staff review process and to gain a more effective FAR calculation, three changes are recommended. First, floor area definitions should be clarified in the general Definitions section of the Municipal Code for net and gross floor areas. Second, wording regarding square footage triggers throughout the zoning code should be updated to be consistent with the new, clearer definitions and to meet design review needs for gross calculations in some cases. Third, the Development Application Project Statistics Form should be modified to guide applicants to accurately provide both square footage calculations (net and gross) needed by staff.

Recommendation #1: Municipal Code Definitions. Delete Municipal Code Sections, 28.90.100.B.1, 28.87.300.B.4 and .5 definitions. Add definitions in Section 28.04 as follows:

Floor Area. The net floor area included within the surrounding exterior walls of a building or portion thereof, exclusive of the area occupied by the surrounding walls, vent shafts and courts, areas or structures used exclusively for parking. Floor area is exclusive of decks, balconies, attics and basements that do not exceed a floor-to-ceiling-height of five (5) feet. Nonhabitable areas used exclusively for regional public utility facilities shall not count toward the calculation of floor area.

Gross Floor Area. Building area square footage as measured from the outside of the exterior walls and includes all living spaces, garages, useable basements, cellars and other accessory structures. Gross floor area is exclusive of decks, balconies, any development that does not require a permit, attics that do not exceed a floor-to-ceiling-height of five (5) feet.

Floor Area Ratio (“FAR”). The ratio of gross floor area of all structures (except for underground basements and cellars that extend no more than two (2) feet above finished grade) on a parcel to total parcel area.

Plan Check, Design Review and Building and Safety staff were consulted in drafting the above definitions. Floor area definitions from the Cities of Redondo Beach, Glendale, Sunnyvale, and Carpinteria, are attached for reference. The gross floor area definition above closely resembles the Redondo Beach gross floor area definition. Please note that implementing these new definitions will require Building and Safety staff to accept the new term “gross floor area,” which has traditionally been called “square footage” by the Division. Staff training will be necessary to assure staff that this new term can be implemented in harmony with the existing Uniform Building Code definition of “floor area.”

Recommendation #2: Municipal Code Revisions. Reword Municipal Code Section 22.68.040.B.2 and 22.68.045.C.2 to be consistent with proposed definitions above as follows:

22.68.040.B.2 Existing Wording: All new, and all additions to existing single-residential and one-story duplexes, garages, and accessory structures on the lot will result in a combined floor area in excess of four thousand (4,000) square feet or a floor area to lot ratio of thirty-five percent (35%) or greater.

22.68.040.B.2 Proposed Wording: Proposed projects where the proposed parcel gross floor area would be in excess of four thousand (4,000) square feet or the proposed parcel floor area ~~to lot~~ ratio is thirty-five percent (35%) or greater.

22.68.045.C.2 Existing Wording: The project results in a total combined floor area, including the existing and proposed dwelling, garage and accessory buildings, of two thousand five hundred (2,500) square feet or less...

22.68.045.C.2 Proposed Wording: The project results in a total combined gross floor area, ~~including the existing and proposed dwelling, garage and accessory buildings,~~ of two thousand five hundred (2,500) square feet or less...

Issue Paper C Calculation Methods

Recommendation #3: Revise Development Application Project Statistics Form.

The current Development Application Project Statistics Form square footage calculation section should be replaced with the following tables for applicants to complete. An example site layout and calculation should also be given to applicants. Also, applicants might appreciate being able to download the Excel table to ease filling out the tables. If on the web, formulas could be included in the Excel template, and cells which must be filled out by applicants, shaded below, would be highlighted. Also, preferred terms for buildings types and uses could be on a pull-down menu on the website for each cell in Column A on the menu.

Gross (“Exterior”) Floor Area Calculations (in square feet)

(picture example)

A. Building Type/Use	B. Existing Gross Floor Area	C. Proposed New Gross Floor Area	D. Proposed Demolition Gross Floor Area	E. Total Gross Floor Area (C-D)	G. Floor to Area Ratio (B+E/Lot Size)
1.		+	-		
2.		+	-		
3.		+	-		
Total Property:					

Floor Area (“Net” or “Interior”) Calculations (in square feet)

(picture example)

A. Building Type/Use	B. Existing Floor Area	C. Proposed New Floor Area	D. Proposed Demolition Floor Area	E. Total New Floor Area (C-D)
1.		+	-	
2.		+	-	
3.		+	-	
Total Property:				
Total Net New for Commercial Uses Only:				

Attachments

1. 2001 California (Uniform) Building Code Definition Excerpt
2. Development Application Project Statistics Form
3. City of Redondo Beach Residential Design Guidelines Gross Floor Area Calculation excerpt
4. City of Sunnyvale Floor Area Calculation Definition
5. City of Glendale Floor Area Calculation Definition
6. Memorandum, Bettie Hennon, Calculation Methods for Determining Square Footage Totals for Development Application Submittals, December 20, 2001.

The New Illustrated Book of Development Definitions

Square Footage, Net & Gross & Illustration: p. 119 - 120

City of Carpinteria

14.08.270 Floor area, gross: total area of all floors of a building as measured to the outside surfaces of exterior walls and including halls, stairways, elevator shafts, attached garages, porches, balconies, basements, and offices. (Ord. 315 § 1 (part), 1981)

14.08.275 Floor area, net: area included in surrounding walls of a building, or portion thereof, exclusive of vents, shafts, stairs, halls, attics, basements, garages, etc. (Ord. 315 § 1 (part), 1981)

City of Redondo Beach

"Floor area, gross". In calculating gross floor area, all horizontal dimensions shall be taken from the exterior faces of walls, including covered enclosed porches, but not including the area of inner courts or shaft enclosures.

a. Uses in nonresidential zones. Gross floor area shall mean the floor area of the ground floor and any additional stories, and the floor area of mezzanines, lofts, and basements of a structure. Gross floor area shall not include any area used exclusively for vehicle parking and loading, enclosed vertical shafts, or elevators.

b. Residential uses in "R" residential zones. Gross floor area shall mean the floor area of the ground floor and any additional stories of all buildings on the lot including accessory buildings. The gross floor area shall include mezzanines, lofts, and garages. Gross floor area shall not include decks, balconies, attics, basements where the finished first floor above the basement (or the roof of the basement where there is no first floor above) is no more than two (2) feet above the existing grade or finished grade, whichever is lower, within the front forty (40) feet of the lot, or basements not located within the front forty (40) feet of the lot.

"Floor area ratio" or "F.A.R." shall mean the numerical value obtained through dividing the gross floor area of a building or buildings located on a lot by the total area of such lot.

City of Santa Monica

Section 9.04.02.030-315 Floor area.

The total gross horizontal areas of all floors of a building, including usable basements and all areas measured from the interior face of exterior walls, or a wall separating two buildings excluding:

- (a) Stairways and stairwells;
- (b) Elevators, elevator equipment rooms and elevator shafts;
- (c) Ramps to a subterranean or semi-subterranean parking structure or ramps between floors of a parking structure provided the ramp does not accommodate parking;
- (d) Unenclosed decks, balconies and platforms not used for commercial or restaurant activity;
- (e) Courtyards, arcades, atria, paseos, walkways and corridors open to the outdoors whether or not covered by a roof provided they are not used for commercial or restaurant activity;
- (f) The volume above interior courtyards, atria, paseos, walkways and corridors whether covered or not;
- (g) Subterranean and semi-subterranean parking structures used exclusively for parking and loading and unloading;
- (h) At-grade parking not covered by a building, structure or roof;
- (i) Loading docks open or covered by a roof or canopy, but otherwise unenclosed and used exclusively for loading and unloading;
- (j) Mechanical equipment rooms, electrical rooms, telephone rooms, and similar space, if located below grade.

Floor area shall include those areas occupied by the following:

- (a) Restrooms, lounges, lobbies, kitchens, storage areas, and interior hallways and corridors;
- (b) The floor area of interior courtyards, atria, paseos, walkways and corridors covered by a roof or skylight;
- (c) Covered at-grade parking;
- (d) Above grade parking.

Floor area devoted to covered at-grade parking shall be counted at two-thirds of the actual area if all of the following conditions are met:

- (a) The floor devoted to parking does not exceed ten feet in height;
- (b) There is at least one level of subterranean or semi-subterranean parking provided on the parcel;
- (c) The at-grade and above grade parking levels are screened from view;
- (d) There is no parking on the ground floor within forty feet of the front property line;
- (e) The design of the parking levels is compatible with the design of the building as determined by the Architectural Review Board. (Added by Ord. No. 1826CCS § 1 (part), adopted 11/7/95)

City of San Luis Obispo

“Floor area ratio” means the gross floor area of a building or buildings on a lot divided by the lot area.

“Gross floor area” means the total area enclosed within a building, including closets, stairways, and utility and mechanical rooms, measured from the exterior face of the walls.

County of San Luis Obispo

"Floor Area" means the total floor area of each floor of all buildings on a site, including internal circulation, storage and equipment space, as measured from the outside faces of the exterior walls, including enclosed halls, lobbies, stairways, elevator shafts, enclosed porches and balconies.

GRADING CALCULATIONS

Background

The City of Santa Barbara does not have a definition of “grading”, “cut”, or “fill”. Staff and Design Review Boards expect applicants to indicate all cut and fill for a project, including recompaction.

One Neighborhood Preservation Ordinance (NPO) trigger for ABR is “over 250 cubic yards of grading”. (Municipal Code Section 22.68.045.C.3.g)

The current Municipal Code contains the following definition for “fill”, but no definition for “grading” or “cut”.

Fill: Earth or any other substance or material, including pilings placed for the purposes of erecting structures thereon, placed in a submerged area.

Issues

Grading Application Statistic Requirements Unclear to Applicants

Applicants commonly do not include recompaction areas in grading calculations on application submittals. Often cut and fill information is mistakenly omitted when there is an on-site grading balance. Staff may discover mis-represented grading amounts late in the process and confusion can be common in processing cases as to actual grading amounts. Some projects which should have triggered ABR review due to grading over 250 cubic yards, may not be routed through ABR because of unresolved misrepresented grading totals on applications.

Other Jurisdictions

Some jurisdictions, such as the County of Santa Barbara and the City of Rancho Palos Verdes, provide more definitions related to grading, cut and fill than does the City of Santa Barbara. Other jurisdictions, such as the City of Carpinteria, Ventura, Santa Monica and County of San Luis Obispo, provide comparable or fewer definitions than does the City of Santa Barbara. The Planner’s Dictionary also includes some definitions related to grading, cut and fill.

Staff assumes that where jurisdiction definitions include cut, fill and recompaction within a grading definition, the jurisdiction requires this information as part of an application. In particular, the County of Santa Barbara Grading Ordinance is clear in its inclusion of recompaction in its definition of grading.

Options

Option #1 Retain current definition of “fill”, provide no definition of “grading” or “cut”.

Option #2 Utilize County of Santa Barbara definition(s) of grading, borrow, compaction, cut, earth material, excavation, fill and stockpiling. This set of definitions clarifies that grading indicates that compaction of soil is considered as part of cut and fill grading plan submittal requirements.

Grading: Any activity which involves the physical movement of earth material, including any excavating, filling, stockpiling, movement of material, compaction of soil or creation of borrow pits.

Borrow: Earth material acquired from an off-site location for use in grading on a site.

Compaction: The densification of a fill by mechanical means.

Cut: (1) An excavation. (2) The difference between a point on the original ground and a designated point of lower elevation on the final grade. (3) The material removed in excavation.

Earth Material: Any rock, natural soil and/or any combination thereof.

Excavation: Any activity by which earth, sand, gravel, rock or any other similar material is dug into, cut, quarried, uncovered, removed, displaced, relocated or bulldozed.*

Fill: (1) A deposit of earth, sand, gravel, rock, or any other suitable material placed by artificial means; any act by which earth, sand, gravel, rock, or any other suitable material is placed, pushed, dumped, pulled, transported or moved to a new location above the natural surface of the ground or on top of the stripped surface. (2) The difference in elevation between a point on the original ground and a designated point of higher elevation on the final grade, as measured in a vertical plane.*

Stockpiling: The accumulation of earth material in one location.

*For these definitions, the phrase, “including the resulting conditions thereof” was deleted from the original County of Santa Barbara definition, since it is not clear what that means.

Option #3 Revise City of Santa Barbara Development Application Project Statistics Form. Where the form now has a subheading “Grading Quantity:”, change this subheading to read, “Grading Quantity, including recompaction:”

Recommendations

Recommend **Option #2**, adoption of grading, borrow, compaction, cut, earth material, excavation, fill and stockpiling definitions to match County of Santa Barbara definitions, and **Option #3** to clarify application requirements regarding recompaction calculations.

Attachments

The New Illustrated Book of Development Definitions

Grading: Any stripping, cutting, filling, or stockpiling of earth or land, including the land in its cut or filled condition to create new grades.

Cut: A portion of land surface or area from which earth has been removed or will be removed by excavation; the depth below the original ground surface or excavated surface. See Figure 37.

Fill: Sand, gravel, earth or other materials of any composition whatsoever placed or deposited by humans. See Figure 37.

Filling: The process of depositing fill in low-lying marshy or water areas to create usable land. See Land Reclamation; made land.

City of Carpinteria & City of Ventura

None which staff is aware of.

City of Rancho Palos Verdes

Grading: Excavation or fill, or any combination thereof, and includes the conditions resulting from any excavation or fill. (Ord. 320 § 7 (part), 1997: Ord. 277 § 8 (part), 1992)

Fill: Any act by which earth, sand, gravel, rock or any other similar material is deposited, placed, pulled or transported by man, and shall include the conditions resulting there from. (Ord. 320 § 7 (part), 1997: Ord. 277 § 8 (part), 1992)

Export: Excess earth material that is removed from a grading project and deposited off-site or the process of removing earth material and depositing it off-site. (Ord. 320 § 7 (part), 1997: Ord. 277 § 8 (part), 1992)

Balanced grading: Cutting and filling of a site which does not require the export or import of earth material. (Ord. 320 § 7 (part), 1997: Ord. 277 § 8 (part), 1992)

Remedial grading: Excavation, fill or any combination thereof, which involves the redistribution of earth materials for the purpose of reestablishing the stability and continuity of said area. (Ord. 320 § 7 (part), 1997: Ord. 277 § 8 (part), 1992)

Stockpile: Imported earth temporarily placed and stored for future fill on or off-site. (Ord. 320 § 7 (part), 1997; Ord. 277 § 8 (part), 1992)

Santa Monica

Grading: Any stripping, cutting, soil removal, filling or stockpiling of earth or land.

County of San Luis Obispo

Grading: Any activity which involves the physical movement of earth material. This includes any excavating, filling, stockpiling, movement of material, compaction of soil, creation of borrow pits, or combination thereof, but does not include surface mining or quarrying operations (including the extraction and stockpiling of excavated products and the reclamation of mined lands) operating in conformance with Chapter 22.36 (Surface Mining and Reclamation).

County of Santa Barbara

The County of Santa Barbara Grading Ordinance (Municipal Code No. 3937) contains many definitions related to grading in its Grading Ordinance. See attached pages 5 – 10 of the Ordinance.

SLOPE

Background

The Hillside Design District was created in 1992 to help refer hillside projects that are likely to be more visible to the Architectural Board of Review. The District was intended to generally encompass 20% slope or greater lots. The current NPO requires all projects in Hillside Design Districts on lots of 20% or greater to undergo ABR review (Municipal Code Section 22.68.045.B.1).

If applicants complete studies which show their lot has less than a 20% slope, then their project would be exempt from Architectural Board of Review. To save applicants survey costs, in 1998 the City hired Penfield and Smith to map the slope of the Hillside Districts. The method used by Penfield and Smith to complete the slope study is not the same method required in the City's Zoning Ordinance. As a result, the degree of accuracy of the Penfield and Smith study has been acknowledged to have a plus or minus 2% slope range. Therefore, any applicants showing a 18% slope or greater in the Permit Plan system must still submit to the Architectural Board of Review unless a survey completed per Zoning Ordinance requirements confirms the property's slope is less than 20%. The standard administrative practice to determine average slope on a parcel is provided in a May 6, 2002 Memo by Bettie Hennon, City Planner. This memo, a handout available at the Public Planning Counter, is attached.

Issues

Cost of Surveys

For applicants wishing to show that a property is less than a 20% slope when permit plan shows 18% slope or greater, the cost of surveying a property can be multiple thousands of dollars depending on the size, complexity of topography, vegetation coverage and accessibility of a lot. This adds significantly to development application preparation costs for applicants pursuing a land survey.

Additional Projects Routed to ABR

To avoid this additional expense of a land survey, many applicants with 18% to 20% lots indicated in the Permit Plan system choose to route projects to the ABR instead of completing a land survey to save land survey costs. The result is a heavier caseload for ABR than was intended by the original creation of the Hillside Design District. ABR is currently generally overloaded, and these additional hillside cases contribute to the problem.

Other Jurisdictions

Most jurisdictions researched did not appear to have a special definition or method for calculating slope. However, the County of Santa Barbara and the County of San Luis Obispo do contain some additional

information on this topic in their Municipal Codes. The Planner's Dictionary also includes some definitions related to slope.

Options

Option #1. Retain current definition of slope, per administrative practice memo, no update to permit plan data, no new Zoning Ordinance definitions.

Option #2. A more accurate survey could be completed at a significant cost. Given current overall Planning Department budget considerations and potential significant cost, this project would not be likely to merit priority for funding.

Option #3. A simpler definition of slope could be adopted to reduce the cost of surveys for applicants who choose to survey. However, it does not appear that other jurisdictions' calculations for slope are much simpler than the City of Santa Barbara's definition. Also, it may be that hiring a certified land surveyor is the significant cost associated with determining slope. Any definition of slope would likely still require a certified land surveyor's report, and so a simpler calculation method would not be likely to lead to a significant cost savings for applicants.

Recommendations

Option 1, slope calculation issue is simply presented to educate Steering Committee on current practices and issues. No feasible solutions appear readily available.

Attachments

The New Illustrated Book of Development Definitions

Slope: The deviation of a surface from the horizontal, usually expressed in percent or degrees. See Grade. See figure 41. Comment: Slope percent is computed by dividing the vertical distance by the horizontal distance times one hundred.

Grade: (1) The average elevation of the land around a building; (2) the percent of rise or descent of a sloping surface. See Figures 37 and 41. Comment: Grade is usually described as finished or natural and measured in feet above sea level. There is a distinction between percent of slope and degree of slope. For example, a forty-five-degree slope is a 100 percent grade.

County of Santa Barbara

The County of Santa Barbara has a Grading Ordinance (Municipal Code No. 3937) that contains the following definitions:

Slope: An inclined ground surface. The inclination of which is expressed as a ratio of horizontal distance to vertical distance, as in two to one (2:1), meaning a horizontal distance of two (2) feet to one (1) foot vertical.

See attachment:

Reference Diagram Excerpts from Co. Ord. No. 3937

County of San Luis Obispo

Slope: Degree of inclination or percent of slope. An inclined ground surface. The inclination of which is expressed as a ratio of horizontal distance to vertical distance, as in two to one, meaning a horizontal distance of two feet to one foot vertical.

Slope, Average: The characteristic slope over an area of land, expressed in percent as the ratio of vertical rise to horizontal distance. In any cluster development (see Section 22.22.140) or where the size of the proposed new parcels is ten acres or greater, average slope is to be determined for the entire site and does not need to be determined for each proposed parcel. In all other cases, average slope is to be determined based on the most accurate available topographic information for each proposed new lot. One of the following methods for determining average slope is to be used:

- a. "Basic Method" means where slopes are uniform, with little variation the basic method can be used to determine average slope. Where a line is drawn between highest and lowest points on a parcel is adequate to represent direction and extent of slope for the entire parcel, the difference in elevation between the high and low points, divided by the distance between the points, will determine the average slope.
- b. "Sectional Method" means where the parcel contains distinct sections of differing slope, the average slope of each section may be determined according to the contour measurement method in (c) below. The average slope of each section is then used in proportion of the section's area to the total area to determine the average slope of the entire parcel.
- c. "Contour Measurement Method" means where varied slope conditions or complex topography exist, the most precise measurement of average slope is the contour measurement method. The following formula shall be used to determine average slope:

$$S = \frac{.00229(I \times L)}{A}$$

Where S = Average slope of parcel in percent
 A = Total number of acres in the parcel (or section of parcel)

L = Length of contour lines in scaled feet
I = Vertical distance of contour interval in feet.

BUILDING HEIGHT

Background

The current definition of building height is explained in Public Planning Counter handout, attached. The definition measures the height of a building from natural grade for all points of natural grade on a project site:

28.04.120 **Building Height.** The maximum vertical height of a building or structure at all points measured from natural grade. Architectural elements that do not add floor area to a building, such as chimneys, vents, antennae, and towers, are not considered a part of the height of a building, but all portions of the roof are included. (Ord. 4641, 1990; Ord. 3710, 1974; Ord. 3540, 1972.) (format added for emphasis)

The Zoning Ordinance does not include a definition of natural grade, but does include a definition of “grade” as follows:

28.04.261 **Grade.** The lowest point of elevation of the finished surface of the ground between the exterior wall of a building and a point five feet (5') distant from and outside of said wall, or the lowest point of elevation of the finished surface of the ground between the exterior wall of a building and the property line if it is less than five feet (5') distant from said wall. In case walls are parallel to and within five feet (5') of a public sidewalk, alley or public way, the grade shall be the elevation of the sidewalk, alley or public way. The term exterior wall shall include columns or other supporting members, whether free-standing or connected to a wall. (Ord. 3710, 1974; Ord. 3540, 1972.)

A previous zoning ordinance definition of building height measured height from the lowest finished grade point to the finished second floor plus eight feet. However, this definition seemed to result in a number of projects with very tall vaulted ceilings. The definition of height was revised to address this issue in 1992 to the current definition. The current definition is also intended to encourage cutting of homes into hillsides to “hide” some of a building’s mass in the hillside.

One NPO trigger for ABR review is a building height in excess of 25 feet. (Municipal Code 22.68.045.C.3.D) This NPO building height trigger is included because homes over 25 feet may have a greater potential to be incompatible with a neighborhood than homes under 25’.

Issues

The following five issues are typically hillside issues. Since hillside issues are scheduled for discussion in August, this issue paper just touches on this topic, and additional diagrams and potential solutions for this topic will be discussed at that time.

Determining Natural Grade

The current height definition's reliance upon natural grade can be problematic when a project site's contours have been significantly altered prior to a project application. Determining natural grade in these cases can sometimes be very difficult without a geologist's report. There are at least three sub-issues regarding determining natural grade as follows:

1. Requiring a certified land surveyor's report to determine natural grade would add significant cost to processing the project.
2. Natural grade in some cases may seem to be less relevant than finished grade in considering the project's visual impacts to a surrounding area. In these cases the extra time and expense to determine natural grade may seem futile.
3. Allowing a height measured from natural grade rather than actual finished grade can sometimes result in a project proposal in conformance with the definition which is more visually impactful than the project might be if the allowed height were measured from the finished grade. This is often the case for projects where a significant amount of fill has been placed, as shown in the figure below.

Appearance of Tall Structures on Sloped Lots & "Spilldown" Effect

The current definition of building height allows for "spilldown" on sloped lots, creating an appearance of a very tall structure from a distance, as illustrated below. Even though a home might comply with a maximum building height of 30', it could appear taller than three stories due to "stepping" of a structure. Single Family Design Guidelines Page H-7, attached, indirectly illustrates this issue.

No Limit to Amount of Stepping/Spilldown

There is no limit to the length of a structure's steps rises or runs or how many steps a structure may have. Some jurisdictions have placed restrictions regarding grading cut and fill rises or runs for homes. These restrictions have the effect of changing the overall perceived height of a structure since there is a limit to how far a structure can spilldown a hillside. The Hillside Spilldown issue paper will address this issue and provide information regarding how regulations from the City of Rancho Palos Verdes and the County of Santa Barbara Toro Canyon Plan address this issue.

Maximum Height

The maximum height of a building is the same for hillside and infill areas, but the apparent height of hillside structures is much higher because of "stepping." If the "stepped" height limit definition currently in place is continued to be used, it may be prudent to have a different maximum height for sloped lots than infill lots to compensate for the visual impact of "stepping" a house. Some jurisdictions, such as the County of Santa Barbara, utilize a different maximum height for sloped lots.

No Definition of Natural and Finished Grade

The current lack of a definition of “Natural” and “Finished Grade” in the Municipal Code can complicate implementation of regulations regarding height.

Other Jurisdictions

There is a wide variation in how jurisdictions calculate height. Variations in height measurements on hillside lots tend to be even greater among jurisdictions. To illustrate this, listed below are the various “from” and “to” measurement points for various jurisdictions.

Where height is measured “from” the ground.

- finished grade/point where the lowest foundation or slab meets finished grade (New Illustrated Book of Development Definitions, attached illustration)
- average finish grade of the lot covered by the building (City of Carpinteria)
- preconstruction (existing) grade at the highest point on the lot to be covered by the structure (City of Palos Verdes)
- along a line at existing grade bisecting the width of the lot (City of Redondo Beach)
- average established curb/highest adjoining sidewalk (City of Ventura, Uniform Building Code)
- average level of the highest and lowest point of that portion of the lot or building site covered by the building (County of San Luis Obispo)
- average finished grade at the corner points of the building line (City of Ventura)

Note that the City of Santa Barbara’s practice of measuring height of a structure from all points of natural grade under a structure is not shared by any of the jurisdictions cited above and could be considered a more liberal interpretation of height than some of the definitions provided above.

Where height is measured “to” (how high on the building’s roof).

- top of the highest roof beams on a flat or shed roof, the deck level on a mansard roof, and the average distance between the eaves and the ridge level for gable, hip, and gambrel roofs (the City of Carpinteria – 20’ max., County of Santa Barbara, Uniform Building Code, New Illustrated Book of Building Definitions, attached illustration)
- ridgeline or the highest point of the structure (City of Rancho Palos Verdes)
- highest, topmost point of a building or structure/ highest points of the coping of a flat roof or to the height of the highest gable of a pitch or hip roof (City of Redondo Beach – 30’ max., County of SLO - 16’ to 25’ max. height for hillside areas, Santa Monica – 25’ max. height, County of Ventura – 30’ max.)

Note that the City of Santa Barbara measures to the highest point of a structure, regardless of the roof style, similar to the City of Redondo Beach, County of SLO, Santa Monica and County of Ventura.

Other jurisdictions tend to provide more definitions for natural grade and finished grade than the City of Santa Barbara does. The County of Santa Barbara definitions for these terms, as follows, located in the County of Santa Barbara Grading Ordinance appear to be sufficient definitions. Additional definitions of these terms from other jurisdictions and the Planner’s Dictionary are planned to be provided for consideration in the Hillside Issue Paper scheduled in August.

Recommendation & Study Options

It is recommended that at this time, the Steering Committee simply be aware of how height is currently calculated in the City of Santa Barbara and some issues associated with this calculation method. Options below will be considered in detail as part of the Hillside Issue Paper. Staff recommends that the Steering Committee not provide input on this topic at this time.

Study Option #1: Retain **current definition** with no changes.

The maximum vertical height of a building or structure at all points measured from **natural grade**. Architectural elements that do not add floor area to a building, such as chimneys, vents, antennae, and towers, are not considered a part of the height of a building, but all portions of the roof are included.

Study Option #2: Return to **original definition**:

The difference in elevation between the lowest point of contact of the building with the adjacent ground and a point eight (8) feet above the finished floor elevation of the highest story in the building.

Study Option #3 Return to original definition, but **measure from lowest grade point to maximum building height**, rather than not counting the height above the finished plate height.

The vertical distance measured from all points of a building or structure where it meets the adjacent ground, either natural or finished grade, whichever is lower, to the maximum vertical height of a building or structure at all points.

Study Option #4: Consider a **different maximum building heights** for ridgeline or steeply sloped properties.

Study Option #5: Enact hillside **spillover maximum grading** regulations which would improve height appearance of stepped structures.

Other Study Options: May be developed as part of the Hillside Development Issues Paper.

Attachments

1. City of Santa Barbara Building Height Limitations Handout
2. Single Family Design Guidelines Page H-7
3. New Illustrated Book of Building Definitions, finished grade and building height illustrations from pages 43 and 114.